

Further searches for the Dibbler, *Antechinus apicalis* (Marsupialia: Dasyuridae)

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Abstract

The Dibbler, *Antechinus apicalis*, is a rare dasyurid marsupial. At the present time Dibblers are known to occur in only two localities (Cheyne Beach and Jerdacuttup) in the south of Western Australia. A total of 9 Dibblers have been trapped at Cheyne Beach since 1967, when the first specimens collected for 83 years were captured. Dibblers have been found there in only one small area of about 10 ha of *Banksia*-dominated heathland. At Jerdacuttup 2 Dibblers were reported from farms in 1976 but all attempts to trap them in the region have been unsuccessful, despite intensive trapping in a variety of vegetation associations, including heathland similar to that in the Cheyne Beach locality. The search for the Dibbler has been extended to the Fitzgerald River National Park, between Cheyne Beach and Jerdacuttup, but trapping in heathland there was also unsuccessful.

Introduction

The Dibbler, *Antechinus apicalis*, was considered to be extremely rare, if not extinct, prior to 1967 when Morcombe (1967) collected 2 specimens at Cheyne Beach, Western Australia. Following Morcombe's discovery many attempts were made to collect more specimens. In a previous paper Woolley (1977) recorded the results of all known attempts to trap the Dibbler in the one known habitat at Cheyne Beach and in other localities from the time of re-discovery until February 1976. The other localities included one near Jerdacuttup, some 225 km to the north-east of Cheyne Beach, where a Dibbler was brought in by a cat on a farm in January 1976. The habitat of the Dibbler in this region was not discovered.

Further trapping was carried out late in 1976 at Cheyne Beach and Jerdacuttup. Following the report of a second Dibbler on another farm near Jerdacuttup in December 1976 more trapping was carried out in this region in 1977 and 1978. In addition a search has been made in the Fitzgerald River National Park, which lies within the present known range of the Dibbler. This paper records the results of attempts to trap the Dibbler at Cheyne Beach, Jerdacuttup and the Fitzgerald River National Park between November 1976 and February 1978.

Trapping at Cheyne Beach

November-December 1976

The reason for trapping in the known Dibbler habitat at Cheyne Beach (Area A, Locality 1; Woolley 1977) was to compare the efficiency of a new type of trap with that of the large Sherman traps (23 × 8 × 9 cm) used previously, and to test the

relative effectiveness of unbaited traps and traps baited with two different baits. The new trap was a special non-folding Elliott (26 × 10 × 10 cm) with perforated metal sides, top and rear end designed for a study of the ecology of *Sminthopsis leucopus* (Ahern 1974). Fifty special Elliott and 50 Sherman traps were set in pairs in Area A on the nights of 29 and 30 November and 1 December. The traps were washed before use and on the first night were set unbaited. On the second night 3 live male crickets (*Teleogryllus commodus*) per trap, confined in wire mesh containers, were used as bait. On the third night the traps were baited with bacon and peanut butter, the bait used in previous trapping. The results of trapping on the 3 nights are shown in Table 1.

The *Rattus fuscipes* trapped on the first and second nights were marked with semi-permanent ink and released at the site of capture. The male *Tarsipes spencerae* was in poor condition when removed from the trap and it died later in the day. The specimen was lodged in the Western Australian Museum (number M14948). The *R. fuscipes* and the *A. apicalis* trapped on the third night were released. Both *A. apicalis* females captured were judged on pouch condition (nipples minute, pouch fur pale) to be less than 1 year old. The body weight of one was 42.5 g and the other, 50 g. In a total of 300 trap-nights 12 *R. fuscipes* (minimum of 8 individuals), 1 *T. spencerae* and 2 *A. apicalis* were trapped. Trapping success for *A. apicalis*, was approximately 0.6% or, if each pair of traps at one site is regarded as one, 1.2%.

It can be seen from Table 1 that a greater number and variety of animals were caught in the special Elliott traps than in the Sherman traps, and that more animals were captured in baited traps than in unbaited

Table 1

Animals captured on 3 nights using 2 types of trap, unbaited on the first night and with different baits on the second and third nights

	Night 1 (no bait)	Night 2 (live crickets)	Night 3 (bacon & peanut butter)	Total
Special Elliott traps	1 <i>R.f.</i> ♀	3 <i>R.f.</i> 2♀, 1♂ (R) 1 <i>T.s.</i> ♂	5 <i>R.f.</i> 3♀ (1R), 2♂ (1R) 2 <i>A.a.</i> 2♀	9 <i>R.f.</i> (3R) 1 <i>T.s.</i> 2 <i>A.a.</i>
Sherman traps	1 <i>R.f.</i> ♂	1 <i>R.f.</i> ♀	1 <i>R.f.</i> ♀ (R)	3 <i>R.f.</i> (1R)
Total	2 <i>R.f.</i>	4 <i>R.f.</i> (1R) 1 <i>T.s.</i>	6 <i>R.f.</i> (3R) 2 <i>A.a.</i>	12 <i>R.f.</i> (4R) 1 <i>T.s.</i> 2 <i>A.a.</i>

R.f. = *Rattus fuscipes*, *T.s.* = *Tarsipes spencerae*, *A.a.* = *Antechinus apicalis*, R = recapture.

traps. The two Dibblers were both trapped in special Elliott traps on the third night when bacon and peanut butter was used as bait.

In November 1975 (Woolley 1977) 3 Dibblers were trapped in 90 trap-nights over 4 nights (2 on the first night and one on the third) using Sherman traps baited with bacon and peanut butter, giving a trapping success of approximately 3%. Comparison of the results obtained in 1975 and 1976 suggests that the bait is more important than the type of trap when trapping for *A. apicalis*, although when a choice of traps containing the same bait is available the special Elliott traps are preferred. Since bacon and peanut butter seemed to be the most effective bait it was used in all subsequent trapping. Because the special Elliott traps were non-folding, and therefore less convenient, their use was discontinued after trapping at Jerdacuttup in December 1976.

Trapping at Jerdacuttup

December 1976

The trapping, carried out following the report of the first Dibbler found on a farm near Jerdacuttup, was done in February 1976. No Dibblers were trapped in over 1000 trap-nights. One possible explanation for the lack of success was that the trapping was carried out too close to the breeding season, when, in a related species, trapping success was known to be lower than at other times (Woolley 1977). For this reason further trapping was carried out in December, approximately 3 months before the expected commencement of the breeding season (Woolley 1971). Sherman and special Elliott traps baited with bacon and peanut butter were set in 2 of the 4 localities in which trapping had previously been carried out.

Tamarine Road and Oldfield Location 829; Locality 7, Figure 1.—The south-east corner of Oldfield Location 829 is a block of uncleared land adjacent to the Tamarine Road reserve. Fifty Sherman traps were set along 0.8 km of the northern edge of this block on the nights of 2 and 3 December. No animals were trapped. Another 50 Sherman traps were set along the route of an old telegraph line running roughly east to west through the centre of the block on the nights of 4 and 5 December. Two *R. fuscipes* were trapped. Fifty Sherman traps were set on the road reserve on the night of 6 December, when another 2 *R. fuscipes* were trapped. In a total of 250 trap-nights over 5 days only 4 *R. fuscipes* were trapped.

"Slieve Donard" (Oldfield Location 826) and adjacent land; Locality 10, Figure 1.—Trapping in this locality was carried out in Areas A and C (see Figure 4, Woolley 1977) and in a narrow border of native vegetation along 0.5 km of the drive in from the main road to the house. Fifty special Elliott traps were set along the drive on the nights of 2 and 3 December and 50 Sherman traps were set in Area A on the nights of 3, 4 and 5 December. The 50 Elliott traps were moved to Area C for the nights of 4 and 5 December. In a total of 350 trap-nights in Locality 10 only 1 skink was captured.

January 1977

On 17 December 1976 a second Dibbler was found dead near the house on a farm approximately 10 km to the north-east of "Slieve Donard". The specimen, which was a dry and badly decomposed male, was lodged in the Western Australian Museum (number M14931). Following the finding of this specimen further attempts to trap the Dibbler were made. Apart from very small areas of native vegetation near the house and around 2 creek beds near the northern boundary there was no uncleared land remaining on the property (Oldfield Location 813) where the Dibbler was found so most of the trapping was done in nearby areas of bushland. Large Sherman and standard Elliott traps (32 × 8 × 10 cm) baited with bacon and peanut butter were used.

Oldfield Location 813 and adjacent land; Locality 11, Figure 1.—Fifty Sherman traps were set around the creek beds near the northern boundary of the property on the nights of 14, 15 and 16 January. Another 50 were set in the adjacent road reserve on the south side of North Jerdacuttup Road and 25 on the north side on the nights of 16, 17 and 18 January. Fifty Sherman traps were set around the house area on the night of 22 January. In a total of 425 trap-nights 1 *M. musculus* and 2 lizards were trapped.

Oldfield Location 812; Locality 12, Figure 1.—Fifty Sherman traps were set between the creek and the northern boundary in a line approximately 1 km long starting from the eastern boundary for 3 consecutive nights from 19 January. No animals were caught in a total of 150 trap-nights.

Vacant Crown Land (Oldfield Location 1221); Locality 13, Figure 1.—Fifty Sherman and 50 Elliott traps were set on the eastern edge of the northern

half of this block on the nights of 14 and 15 January. In a total of 200 trap-nights no animals were captured.

Oldfield Location 814; Locality 14, Figure 1.—Fifty Elliott traps were set in bushland to the north of a cleared, fenced block in the south-eastern corner of this property on the nights of 22 and 23 January. No animals were trapped in 100 trap-nights.

Government Requirements Reserve No. 28110; Locality 9, Figure 1.—One hundred Sherman traps were set on the northern boundary of this block in a line extending approximately 1.5 km from the eastern boundary on the nights of 21 and 22 January. Another 50 Sherman traps were set on the eastern side at the southern end of this block on the nights of 22 and 23 January. In a total of 300 trap-nights 2 skinks, 1 *M. musculus* and 2 *T. spencerae* (both females without young in the pouch) were captured.

February 1978

Traps were set in 3 of the localities in which trapping had previously been carried out. Large Sherman and standard Elliott traps baited with bacon and peanut butter were used.

Tamarine Road and Oldfield Location 829; Locality 7, Figure 1.—One hundred and twenty-five Sherman traps were set for 3 consecutive nights from 6 February on a line 1 km long across the southern end of the block of uncleared land in Oldfield Location 829 (see above). The trap line passed through an area not burnt in the last 20 years (G. Boothey, pers. comm.). In 375 trap-nights 31 *R. fuscipes* (22 individuals, 9 males, 13 females), 1 female *T. spencerae* with 2 pouch young (crown-rump length of young approximately 17 mm) and 1 Tiger-snake were trapped.

"Sieve Donard" (Oldfield Location 826) and adjacent land; Locality 10, Figure 1.—Sherman traps were set in Area A and Elliott traps in Area D (see Figure 4, Woolley 1977) for 3 consecutive nights from 8 February. In a total of 140 trap-nights in Area A 2 *M. musculus* were trapped, and in 225 trap-nights in Area D, 1 *M. musculus* was trapped.

Government Requirements Reserve No. 28110; Locality 9, Figure 1.—One hundred Sherman traps were set on the nights of 9 and 10 February along 1 km at the eastern end of the northern boundary. Only 1 frog was caught in 200 trap-nights.



Figure 1.—Map showing the trapping localities in the Jerdacuttup region (modified from Woolley 1977). Drawn from Western Australia Department of Lands and Surveys 1 inch to 1 mile maps. The boundaries of the block of uncleared land on Oldfield Location 829 (Locality 7) and Government Requirements Reserve No. 28110 (Locality 9) are shown. The two localities (10 and 11) from which Dibblers have been reported are starred.

Trapping in the Fitzgerald River National Park

January-February 1978

The Fitzgerald River National Park (Fig. 2) lies between the 2 localities in which Dibblers have been found in recent years and it contains areas of heathland very similar to that in the known Dibbler habitat at Cheyne Beach. Morcombe (1969) suggested that Dibblers might be found in the park, the fauna of which is little known. Trapping has been carried out in 4 localities in the south-western corner of the park, and at "Quaalup", a freehold property within the boundaries of the park in the same region. The traps used were both Sherman and standard Elliotts, baited with bacon and peanut butter.

Quaalup Road North; Locality 15, Figure 3.—Five trap lines (A, B, C, D and E) were set in a variety of vegetation associations alongside Quaalup Road North commencing from Gairdner Road and finishing at the Rabbit Proof Fence Road. Trap lines A to D were set for 4 consecutive nights and trap line E



Figure 2.—Map showing the 3 regions (Cheyne Beach, Fitzgerald River National Park and Jerdacuttup) in which trapping has been carried out. Drawn from Map R201, Sheet 111, Australia S.W. Sheet 2nd ed. Division of National Mapping, Canberra, A.C.T.

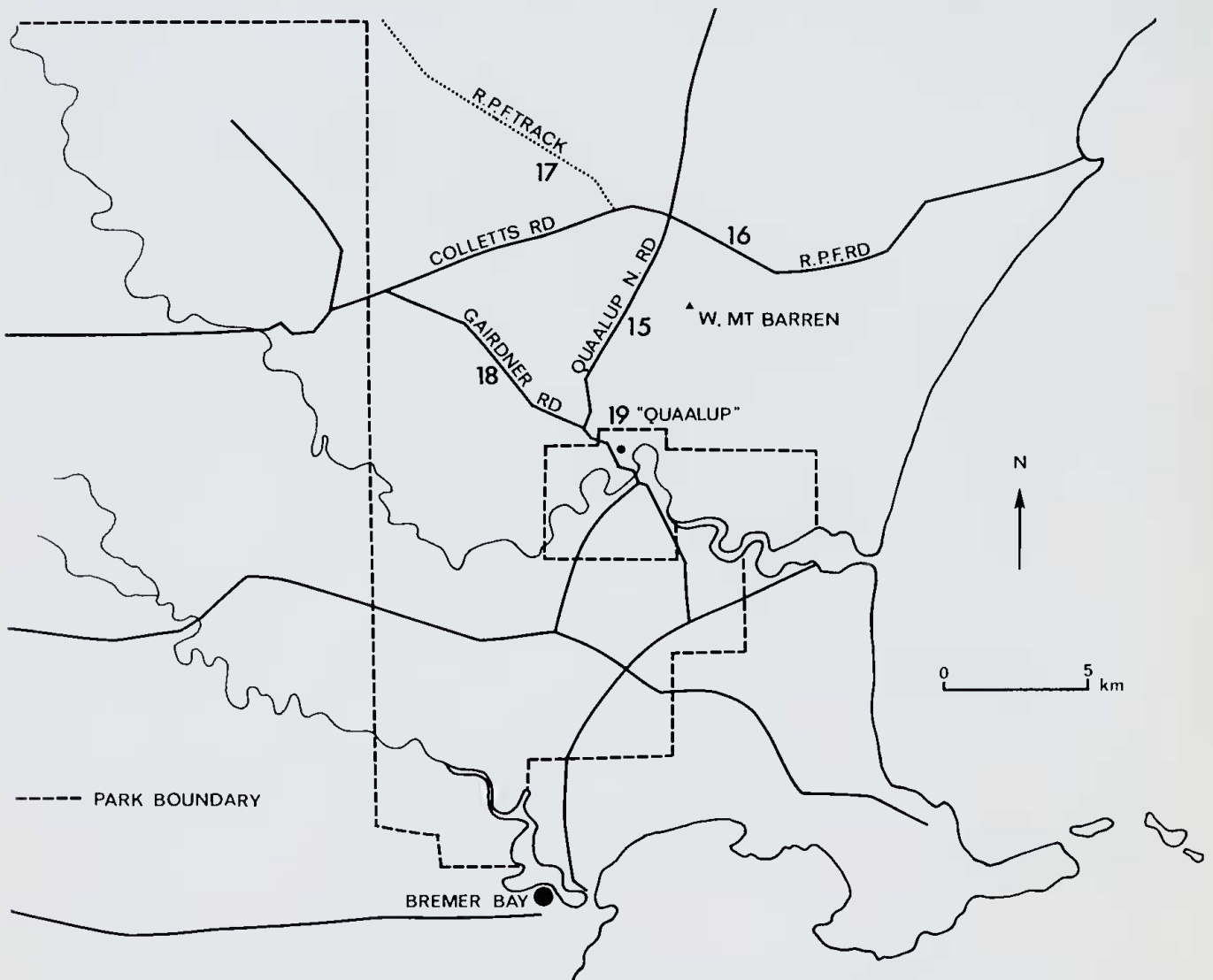


Figure 3.—Map showing the trapping localities in the Fitzgerald River National Park and "Quaalup". Drawn from a map of the Park prepared under the direction of the Director, National Parks Authority, Western Australia, 1977, based on the 1:250 000 National Mapping Series.

Table 2

Length of the trap lines, and the number and type of trap in each line in Locality 15

Trap line	A	B	C	D	E
Length (km)	0.8 (1.6)	0.2 (0.5)	1.3 (0.9)	0.3 (2.5)	0.9
No. of traps	50	20	105	25	75
Type of traps	S	S	30S, 75E	E	E

S = Sherman, E = Elliott. Distance between the trap lines shown in parentheses.

for 5 consecutive nights between 24 and 30 January. The length of the trap lines, the number and types of traps used in each line, and the distance between the lines are given in Table 2.

The results of trapping in Locality 15 are summarised in Table 3, together with the results from Localities 16, 17, 18 and 19 (see below).

Rabbit Proof Fence Road; Locality 16, Figure 3.—One hundred Sherman traps were set for 4 consecutive nights from 28 January alongside 1 km of the Rabbit Proof Fence Road. The trap line commenced 1.3 km to the south of Quaalup Road North.

Rabbit Proof Fence Track; Locality 17, Figure 3.—Seventy-five Elliott traps were set for 4 consecutive nights from 29 January alongside 0.8 km of the Rabbit Proof Fence Track. The trap line commenced 0.8 km to the north of Colletts Road.

Gairdner Road; Locality 18, Figure 3.—Two lines of traps each 0.9 km long were set alongside Gairdner Road to the north of "Quaalup". Line A (100 Elliott traps) was set for 3 consecutive nights from 31 January and Line B (100 Sherman traps) for 2 nights from 1 February. Line A commenced 0.75 km and line B, 6.1 km, from entrance gate to "Quaalup" on Gairdner Road.

"Quaalup"; Locality 19, Figure 3.—Seventy-two Sherman traps were set for 4 consecutive nights from 30 January in an uncleared area on "Quaalup" close to the boundary of the Fitzgerald River National Park.

Five species of mammals were trapped in the Fitzgerald River National Park and at "Quaalup". They were *R. fuscipes*, *T. spencerae*, *M. musculus*, *Sminthopsis murina* and *Pseudomys albocinereus*. It can

be seen from Table 3 that *R. fuscipes* was trapped in much larger numbers than the other 4 species and it was found in all localities. The *R. fuscipes* were marked with semi-permanent ink and released at the site of capture. The number of recaptures is shown in Table 3. Five specimens which were found dead in the traps were lodged in the Western Australian Museum (2 females, numbers M15465 and M15466; 3 males, numbers M15464, M15467 and M15468). The body weights (at first capture) ranged from 12 g to 117 g for the 54 females captured and from 12 g to 110 g for the 65 males. The one *Tarsipes* female captured, with 3 large young in the pouch (total weight of female and young 12 g), was released at the site of capture. The 2 *T. spencerae* males and 2 *S. murina*, which were found dead in the traps, the 2 male *M. musculus* and the *P. albocinereus* were lodged in the Western Australian Museum (*T. spencerae* male M15459 body weight 7 g, male M15460 body weight 10 g; *S. murina* juvenile male M15458, body weight 11 g; adult female M15457, body weight 15 g; *M. musculus* 2 males, M15469, body weights 13 g and 15 g; *P. albocinereus* female M15463, body weight 22 g).

Discussion

Trapping carried out at Cheyne Beach late in 1976 confirmed that Dibblers were extant in the area in which they were rediscovered in 1967, and brought to 9 the total number trapped there. Because of the very low trapping success the experiment to test the effectiveness of a new type of trap and different baiting procedures was not conclusive.

Table 3

Results of trapping in the Fitzgerald River National Park and at "Quaalup", January/February, 1978

Locality	No. Trap-Nights	Animals trapped								
		Total	<i>R.f.</i>			<i>T.s.</i>	<i>M.m.</i>	<i>S.m.</i>	<i>P.a.</i>	Rep-tiles
			♀ (R)	♂ (R)	Individuals					
15A	200	2	1	1	2	.....	.....	.....	.....	.....
15B	80	1	.....	1	1	.....	.....	.....	.....	.....
15C	420	29	16 (2)	13 (3)	24	1♀	.....	.....	.....	2
15D	100	5	2	3	5	.....	.....	.....	.....	.....
15E	375	24	7 (1)	17 (6)	17	1♂	2♂	1♀	1♀	.....
16	400	41	16 (3)	25 (6)	32	1♂	.....	1♂	.....	.....
17	300	4	1	3	4	.....	1	.....	.....	3
18A	300	19	11 (3)	8 (2)	14	.....	.....	.....	.....	.....
18B	200	7	4	3	7	.....	.....	.....	.....	.....
19	288	17	6 (1)	11 (3)	13	.....	.....	.....	.....	.....
Total	2663	149	64 (10)	85 (20)	119	3	3	2	1	5

R.f. = *Rattus fuscipes*, *T.s.* = *Tarsipes spencerae*, *M.m.* = *Mus musculus*, *S.m.* = *Sminthopsis murina*, *P.a.* = *Pseudomys albocinereus*, R = recapture.

Further attempts to trap the Dibbler in the Jerdacuttup region have been unsuccessful. In another 2715 trap-nights, including 600 in December 1976 to test the hypothesis that there might be seasonal variation in trapping success in relation to the time at which the Dibblers breed, the only mammals captured were *R. fuscipes*, *T. spencerae* and *M. musculus*. This failure to trap the Dibbler in the Jerdacuttup region is puzzling. Trapping has been carried out in a variety of vegetation associations in practically all areas of uncleared land in proximity to the 2 sites where Dibblers have been reported and in other nearby localities.

If the vegetation in the one known habitat at Cheyne Beach is typical of the requirements of the Dibbler then the most likely areas in the Jerdacuttup region would seem to be the uncleared block on Oldfield Location 829 (Locality 7) and Government Requirements Reserve No. 28110 (Locality 9). However, trapping in these areas (a total of 885 trap-nights in Locality 7 and 580 around the perimeter of Locality 9) has not been successful. The area of the known habitat at Cheyne Beach is small (approximately 10 ha) so it is possible that the Dibblers may be restricted to areas in which trapping has not been carried out within the above localities. This explanation for the lack of success seems less likely in the case of Locality 7, where trap lines have been set through the block of uncleared land which has an area of about 300 ha, than in the case of Locality 9, a much larger area of approximately 900 ha where traps have only been set around the perimeter.

Another factor which may be of importance in determining the distribution of the Dibbler is the fire history of the area. In 1964 a fire swept through much of the region in which trapping has been carried out. The areas not burnt in this fire can be seen in a mosaic map prepared from aerial photographs taken in 1968 and 1969 (Sheet 610, Ravens-thorpe; Department of Lands and Surveys, Perth, Western Australia). They include the southern part of the uncleared block on Oldfield Location 829 in Locality 7 and the south-western part of Reserve No. 28110 (Locality 9). Trapping in the unburnt area of Locality 7 (375 trap-nights in February 1978) was unsuccessful but very little trapping has been carried out in the unburnt area of Locality 9. What little has been done (80 trap-nights in February 1976)

was along part of the western and southern boundaries; no trapping has been done in the interior of the south-western part because of the density of the vegetation and the absence of tracks. Given that Reserve No. 28110 is a large area of apparently suitable habitat, some of which has not been burnt since 1964, and that it is roughly equidistant from the 2 sites at which Dibblers have been reported, it is considered to be the most likely of the areas investigated in which the Dibbler could be found.

No Dibblers were caught in the Fitzgerald River National Park but 5 other species of mammals including one (*Pseudomys albocinereus*) not previously recorded from the Park were trapped.

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